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Page 1 of 35

Test Report

Verified code: 992228

Report No.: E20241111636501-21EN

Customer: Lumi United Technology Co., Ltd

Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue,
Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

Sample Name: Climate Sensor W100

Sample Model: TH-S04E

Receive Sample Date: Nov.12,2024

Test Date: Nov.15,2024 ~ Nov.21,2024

Reference Document: AS/NZS 4268:2017

Test Result: Pass

Prepared by: Huang Lifang
Huang Lifang

Reviewed by: Jiang Tao
Jiang Tao

Approved by: Xiao Liang
Xiao Liang

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2024-12-17

GRG METROLOGY & TEST GROUP CO., LTD.

Address: No.163, Pingyun Road, West of Huangpu Avenue, Guangzhou, Guangdong, China
Tel: (+86) 400-602-0999 FAX: (+86) 020-38698685 Web: <http://www.grgtest.com>



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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20241111636501-21EN	Original Issue	2024-12-10

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1. TEST RESULT SUMMARY

Test Item	Test mode	Test Requirement	Test Method	Test Result
Transmitter Part				
Maximum EIRP	Mode 1	AS/NZS 4268:2017 Clause 6.3	ETSI EN 300 328 V2.2.2/5.4.2.2.1	PASS
Power Spectral Density	Mode 1	AS/NZS 4268:2017 table 1 row 59	ANSI IEEE C63.10-2020 section 11.10	PASS
Occupied Channel Bandwidth & Operating frequency	Mode 1	AS/NZS 4268:2017 Clause 6.5 and Clause 6.6	ETSI EN 300 328 V2.2.2/5.4.7.2.1	PASS
Transmitter spurious emissions	Mode 1	AS/NZS 4268:2017 Clause 6.4	ETSI EN 300 328 V2.2.2/5.4.9.2.2	PASS
Receiver Part				
Receiver spurious emissions	Mode 2	AS/NZS 4268:2017 Clause 7.2	ETSI EN 300 328 V2.2.2/5.4.10.2.2	PASS

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2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT INFORMATION

Name: Lumi United Technology Co., Ltd

Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd

Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.3 BASIC DESCRIPTION OF EUT

Product Name: Climate Sensor W100

Product Model: TH-S04E

Adding Model: TH-S04D

Models Difference: The model No.TH-S04E & TH-S04D have the same technical construction including circuitdiagram,PCB LAYOUT, hardware version and software version identical, except sales area and packaging are different.

Trade Name: Aqara

Power supply: DC 3V

Battery Specification: Button batteries;
Model: CR2450;
Nominal Voltage: 3V.

Frequency Band: 2405MHz - 2480MHz

Modulation Type: O-QPSK

Antenna Type: PCB Antenna

Antenna Gain: 1dBi gain (Max.)

Sample submitting way: ☒ Provided by customer ☐ Sampling

Sample No: E20241111636501-0001,E20241111636501-0002

Hardware Version: V12

Software Version: V0.0.2.0

Note:

1.The EUT antenna gain is provided by the applicant. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.

2. Based on the differences in models, the model TH-S04E was tested and recorded in this report.

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2.4 TEST MODE

Test mode 1: Thread TX mode

Test mode 2: Thread RX mode

Test mode 3: Thread normal mode

2.5 FREQUENCY BAND AND THE TEST FREQUENCY

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
*11	2405	12	2410	13	2415	14	2420
15	2425	16	2430	17	2435	*18	2440
19	2445	20	2450	21	2455	22	2460
23	2465	24	2470	25	2475	*26	2480

* is the test frequency.

2.6 DESCRIPTION OF ADAPTIVE EQUIPMENT

The type of the equipment	<input type="checkbox"/> FHSS	<input checked="" type="checkbox"/> Non-FHSS		
Adaptive / non-adaptive equipment	<input type="checkbox"/> Non-adaptive Equipment	<input checked="" type="checkbox"/> adaptive Equipment without the possibility to switch to a non-adaptive mode	<input type="checkbox"/> adaptive Equipment which can also operate in a non-adaptive mode	
The equipment has an implemented	<input type="checkbox"/> Frame Based equipment	<input checked="" type="checkbox"/> Load Based equipment	<input type="checkbox"/> non-LBT based DAA mechanism	<input type="checkbox"/> other
Antenna Gain	<input checked="" type="checkbox"/> Antenna 1 dBi	<input type="checkbox"/> Antenna 2 dBi	<input type="checkbox"/> Antenna 3 dBi	<input type="checkbox"/> Antenna 4 dBi
Beamforming Gain	<input type="checkbox"/> Yes, dBi	<input checked="" type="checkbox"/> No		
Extreme operating conditions	<input checked="" type="checkbox"/> Operating temperature range:	<input checked="" type="checkbox"/> Min -20°C	<input checked="" type="checkbox"/> Max +60°C	

3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests and measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.

Add : No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China

P.C. : 518110

Tel : 0755-61180008

Fax : 0755-61180008

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

China CNAS(L0446)

Copies of granted accreditation certificates are available for downloading from our web site,
<http://www.grgtest.com>

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4. MEASUREMENTS UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in ETSI EN TR 100 028-1 (i.15) and ETSI EN 100 028-2(i 8):

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	30MHz~200MHz	4.0 dB ¹⁾
		200MHz~1000MHz	4.1 dB ¹⁾
		1GHz~12.75GHz	4.9 dB ¹⁾
	Vertical	30MHz~200MHz	3.9 dB ¹⁾
		200MHz~1000MHz	4.2 dB ¹⁾
		1GHz~12.75GHz	5.0 dB ¹⁾

Measurement	Uncertainty
RF frequency	6.0×10 ⁻⁶
RF power conducted	0.78 dB
Occupied channel bandwidth	0.40 dB
Unwanted emission, conducted	0.68 dB
Humidity	6.0 %
Temperature	2.0℃

Note:

¹⁾ This uncertainty represents an expanded uncertainty expressed at approximately the 95%.
This uncertainty represents an expanded uncertainty factor of $k=2$.

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5. EQUIPMENT AND TOOLS USED DURING TEST

5.1 TEST EQUIPMENT AND TOOLS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Maximum EIRP & Maximum e.i.r.p. spectral density & occupied channel bandwidth & Operating frequency				
Automatic power measuring unit	TONSCEND	JS0806-2	21B8060365	2024-12-28
Programmable constant temperature and humidity test chamber	FC	FPHC-23AW-40	FD202306015	2025-08-26
Spectrum Analyzer	R&S	FSW43	102072	2025-06-14
BT/WIFI System	Tonscend	JS1120-3		
Transmitter unwanted emissions in the spurious domain & Receiver spurious emissions				
Bi-log Antenna	Schwarzbeck	VULB9163	01279	2025-02-04
Horn Antenna	Schwarzbeck	BBHA9120D	02499	2025-08-30
Amplifier	Tonscend	TAP037030	AP20E8060081	2025-03-01
Amplifier	Tonscend	TAP01018048	AP20E8060076	2025-03-01
Amplifier	Tonscend	TAP9E6343	AP20E806065	2025-03-01
Spectrum Analyzer	KEYSIGHT	N9010A	MY55370330	2025-08-23
Spectrum Analyzer	R&S	FSV3044	101184	2025-07-19
Test SW	Tonscend	JS36-RSE/5.0.0.1		

Note: The calibration interval of the above test instruments is 12 months.

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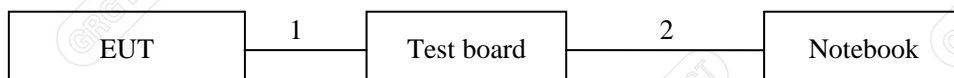
5.2 LOCAL SUPPORTIVE INSTRUMENTS

Name of equipment	Manufacturer	Model	Serial number	Note
Notebook	DELL	Latitude3300	2C6CFW2	/
Test board	/	/	/	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	Serial cable	1	No	0	0.2m
2	USB cable	1	No	0	0.5m

Note: ⁽¹⁾ The notebook is just used to produce fixed frequency transmitting.

5.3 CONFIGURATION OF SYSTEM UNDER TEST



5.4 TEST SOFTWARE

Software version	Test level
QCOM_V1.0	60

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6. RADIO TECHNICAL REQUIREMENT SPECIFICATION

6.1 MAXIMUM EIRP

Test Requirement: AS/NZS 4268:2017 Clause 6.3

Test Method: ETSI EN 300 328 V2.2.2/5.4.2.2.1

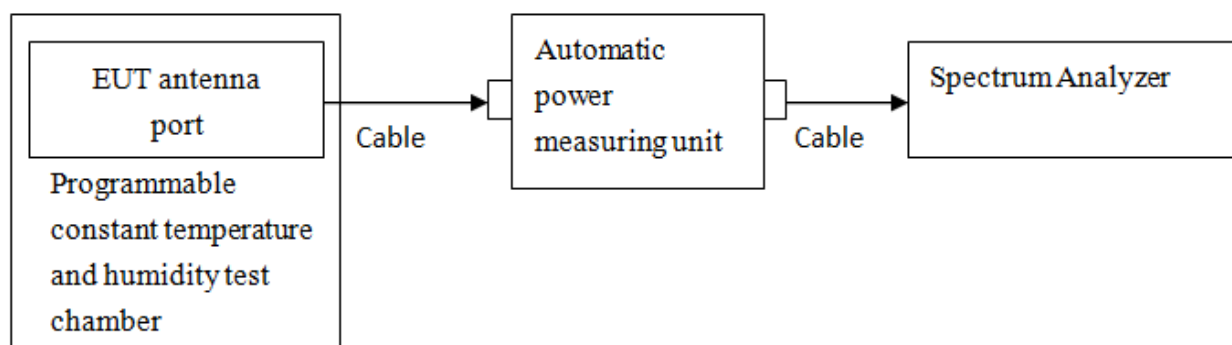
6.1.1 LIMIT

For adaptive equipment, the maximum RF output power shall be 20 dBm.

The maximum RF output power for non-adaptive equipment shall be declared by the manufacturer and shall not exceed 20 dBm. See clause 5.4.1 m). For non-adaptive equipment, the maximum RF output power shall be equal to or less than the value declared by the manufacturer.

This limit shall apply for any combination of power level and intended antenna assembly.

6.1.2 TEST CONFIGURATION



6.1.3 TEST PROCEDURES

Test procedure: Test procedure is according to Clause 5.3.2.2.1 of ETSI EN 300 328 V2.2.2

Test channel: Lowest channel, Middle channel, Highest channel for Thread

Test condition: Normal and extreme test conditions.

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6.1.4 TEST RESULTS

Test environment: Normal condition: 23.2°C/51%RH/101.0kPa

Extreme test conditions: Low Temp: -20°C

High Temp: +60°C

Test Engineer: Qin Tingting

Test Date: 2024-11-21

Test Voltage: DC 3V

Test Condition	Test mode	Antenna	Frequency [MHz]	EIRP[dBm]	Limit[dBm]	Verdict
NTNV	Thread	Ant1	2405	8.54	20	PASS
			2440	8.51	20	PASS
			2480	8.46	20	PASS
LTNV	Thread	Ant1	2405	8.55	20	PASS
			2440	8.53	20	PASS
			2480	8.47	20	PASS
HTNV	Thread	Ant1	2405	8.54	20	PASS
			2440	8.52	20	PASS
			2480	8.46	20	PASS

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6.2 POWER SPECTRAL DENSITY

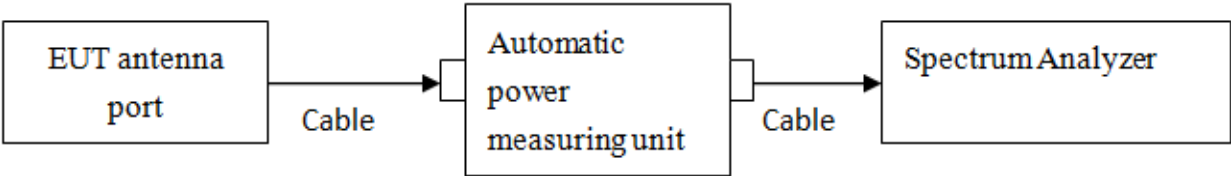
Test Requirement: AS/NZS 4268:2017 table 1 row 59

Test Method: ANSI IEEE C63.10-2020 section 11.10

6.2.1 LIMIT

The limit is 25mW per 3kHz.

6.2.2 TEST CONFIGURATION



6.2.3 TEST PROCEDURES

Test condition: Normal test conditions

Test channel: Lowest channel, Middle channel, Highest channel for Thread

Test procedure:

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3) Set the analyzer span to 1.5 times the DTS bandwidth. Set the RBW = 3 kHz. Set the VBW ≥3 RBW. Detector = peak. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
- 4) Repeat above procedures until all frequencies measured were complete.

Remark: /

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6.2.4 TEST RESULTS

Test environment: Normal condition:
23.2°C/51%RH/101.0kPa

Test Engineer: Qin Tingting

Test Date: 2024-11-21

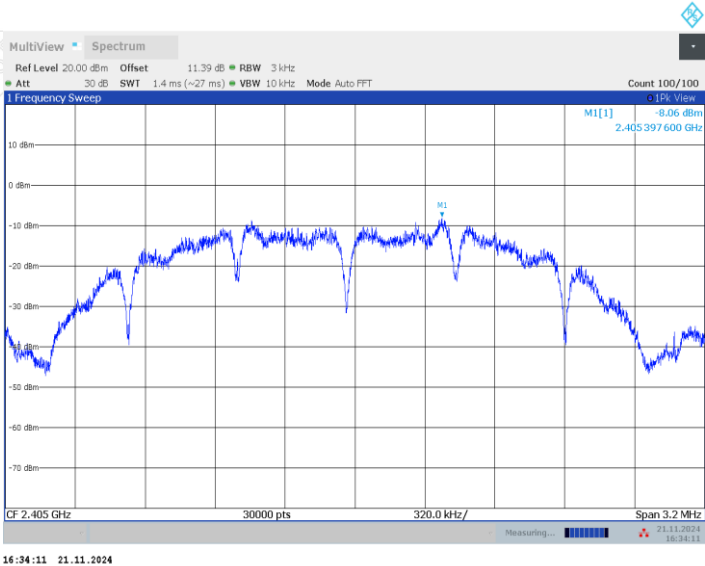
Test Voltage: DC 3V

Thread

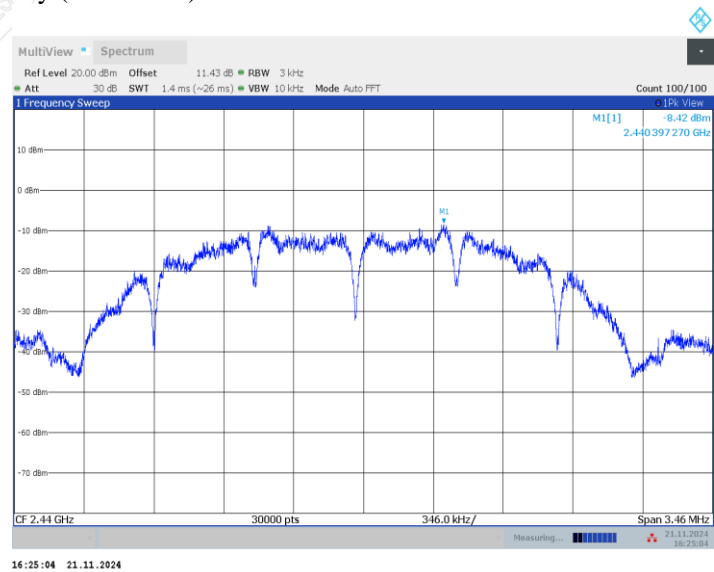
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Test Result
Lowest	2405	-8.06	8.00	PASS
Middle	2440	-8.42		PASS
Highest	2480	-8.63		PASS

Thread

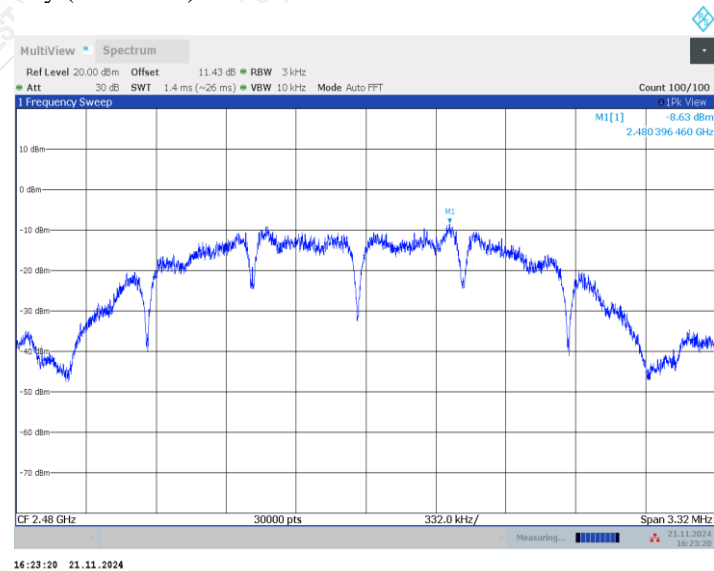
Lowest Frequency (2405MHz)



Middle Frequency (2440 MHz)



Highest Frequency (2480MHz)



6.3 OCCUPIED CHANNEL BANDWIDTH& OPERATING FREQUENCY

Test Requirement: AS/NZS 4268:2017 Clause 6.5 and Clause 6.6

Test Method: ETSI EN 300 328 V2.2.2/5.4.7.2.1

6.3.1 LIMIT

This requirement applies to all types of non-FHSS equipment.

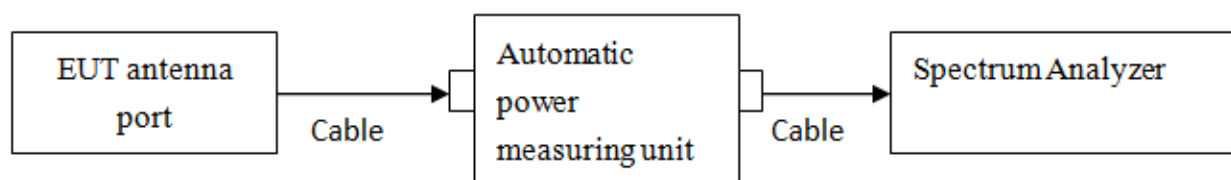
The Occupied Channel Bandwidth shall fall completely within the band given in table 2.

In addition, for non-adaptive equipment using wide band modulations other than FHSS and with e.i.r.p. greater than 10 dBm, the occupied channel bandwidth shall be less than 20 MHz.

Table 2: Service frequency bands

	Service frequency bands
Transmit	2 400 MHz to 2 483,5 MHz
Receive	2 400 MHz to 2 483,5 MHz

6.3.2 TEST CONFIGURATION



6.3.3 TEST PROCEDURES

Test condition: Normal test conditions.

Test channel: Lowest channel, Middle channel, Highest channel for Thread

Test procedure: Test procedure is according to Clause 5.4.7.2.1 of ETSI EN 300 328 V2.2.2

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6.3.4 TEST RESULTS

Test environment: Normal condition:
22.8°C/50%RH/101.0kPa

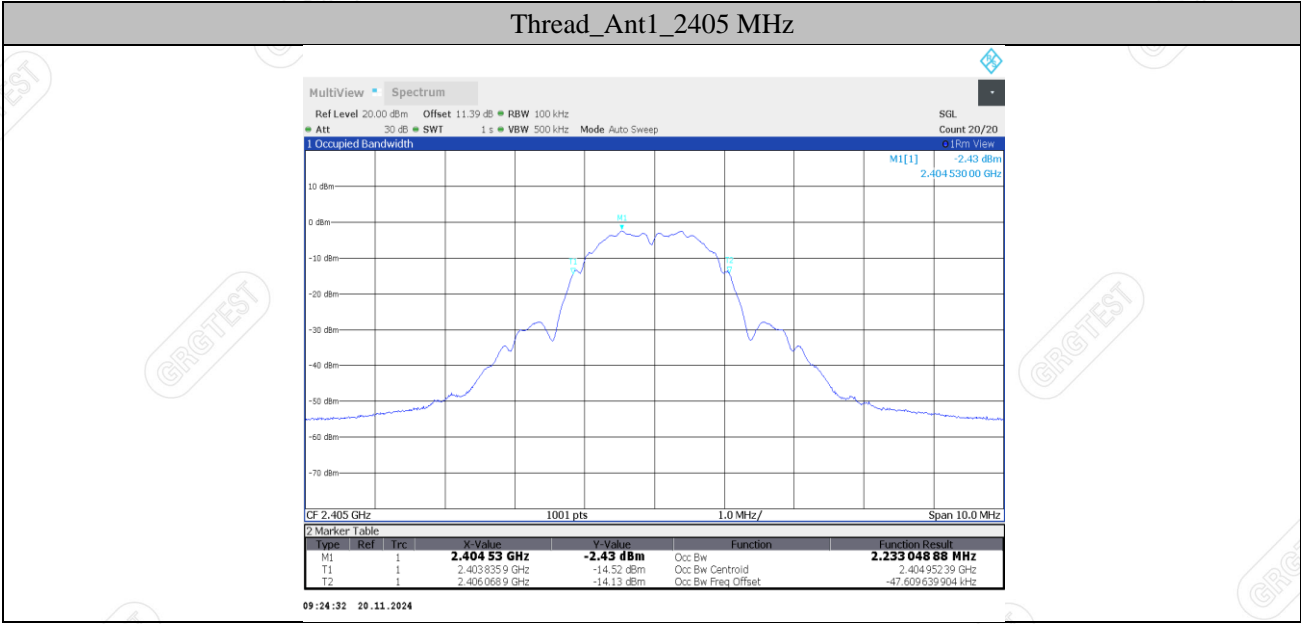
Test Engineer: Qin Tingting

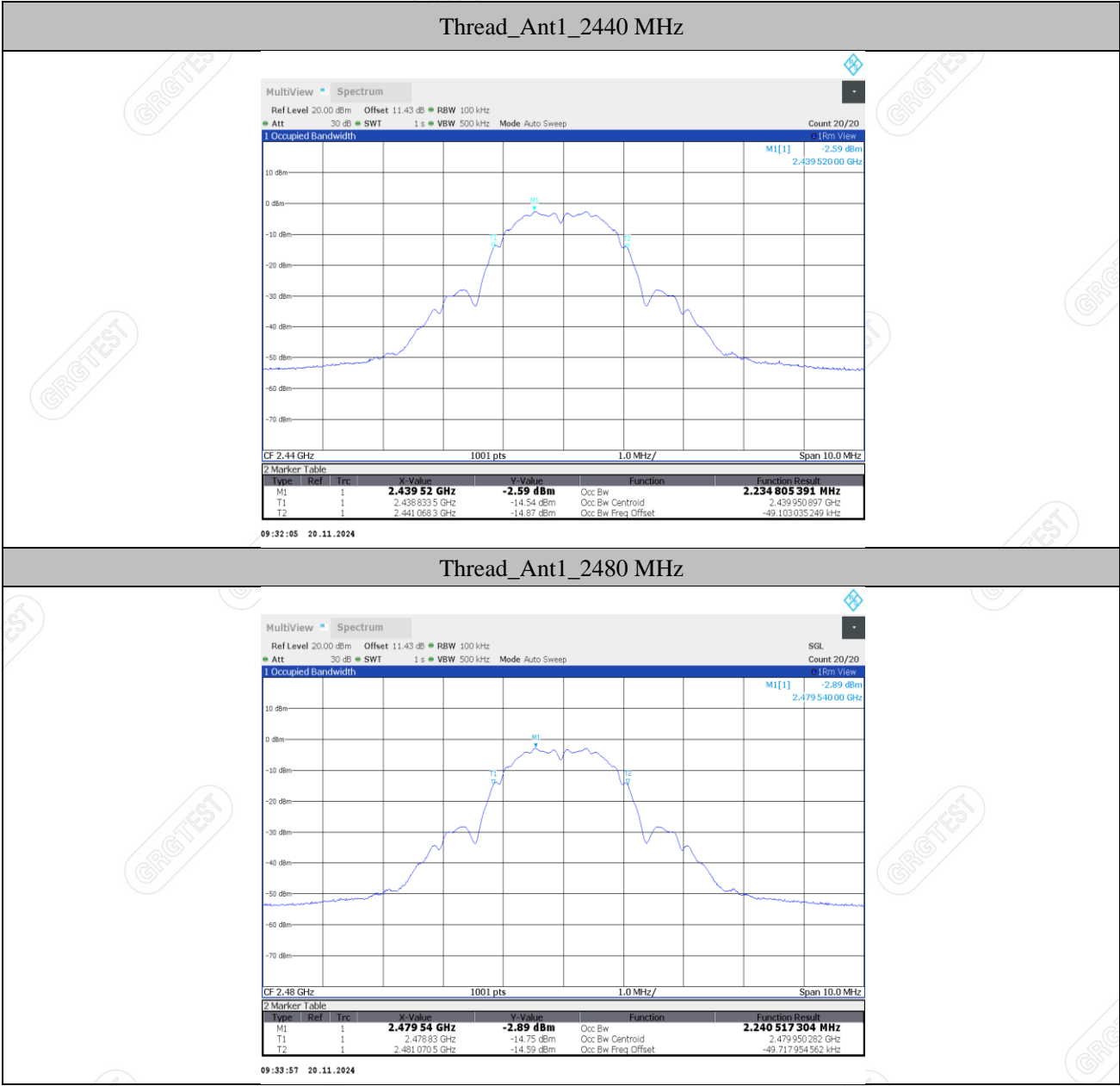
Test Date: 2024-11-20

Test Voltage: DC 3V

Test Mode	Antenna	Freq[MHz]	OCB[MHz]	F _L [MHz]	F _H [MHz]	Limit[MHz]	Verdict
Thread	Ant1	2405	2.233	2403.8359	2406.0689	2400 to 2483.5	PASS
		2440	2.235	2438.8335	2441.0683	2400 to 2483.5	PASS
		2480	2.241	2478.8300	2481.0705	2400 to 2483.5	PASS

Test screenshots





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6.4 TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

Test Requirement: AS/NZS 4268:2017 Clause 6.4

Test Method: ETSI EN 300 328 V2.2.2/5.4.9.2.2

6.4.1 LIMIT

This requirement applies to all types of non-FHSS equipment.

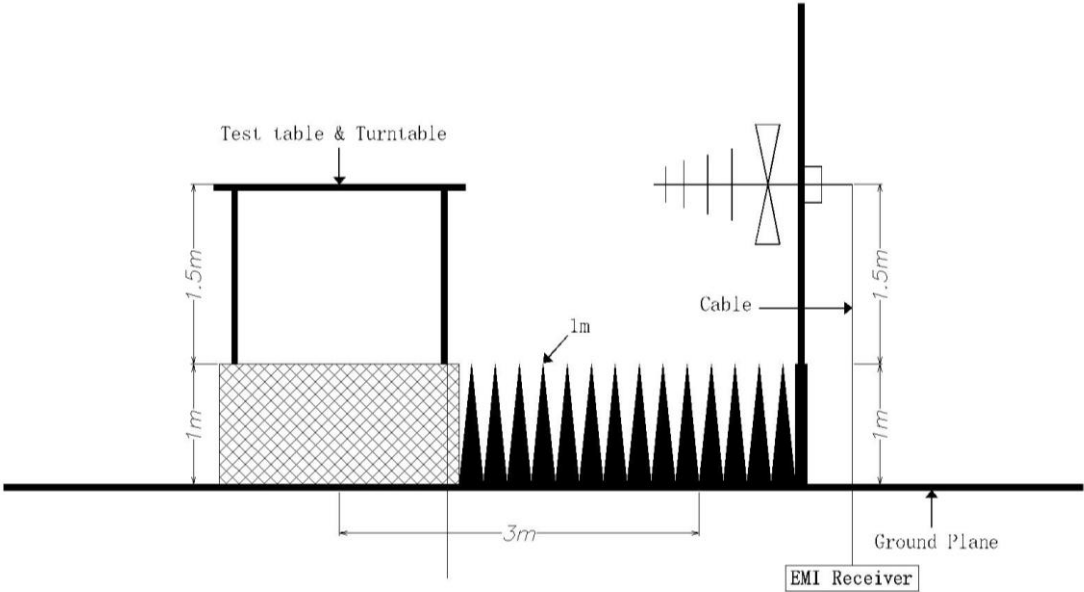
The transmitter unwanted emissions in the spurious domain shall not exceed the values given in table 2. In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p. for emissions up to 1 GHz and as e.i.r.p. for emissions above 1 GHz.

Table 2: Transmitter limits for spurious emissions

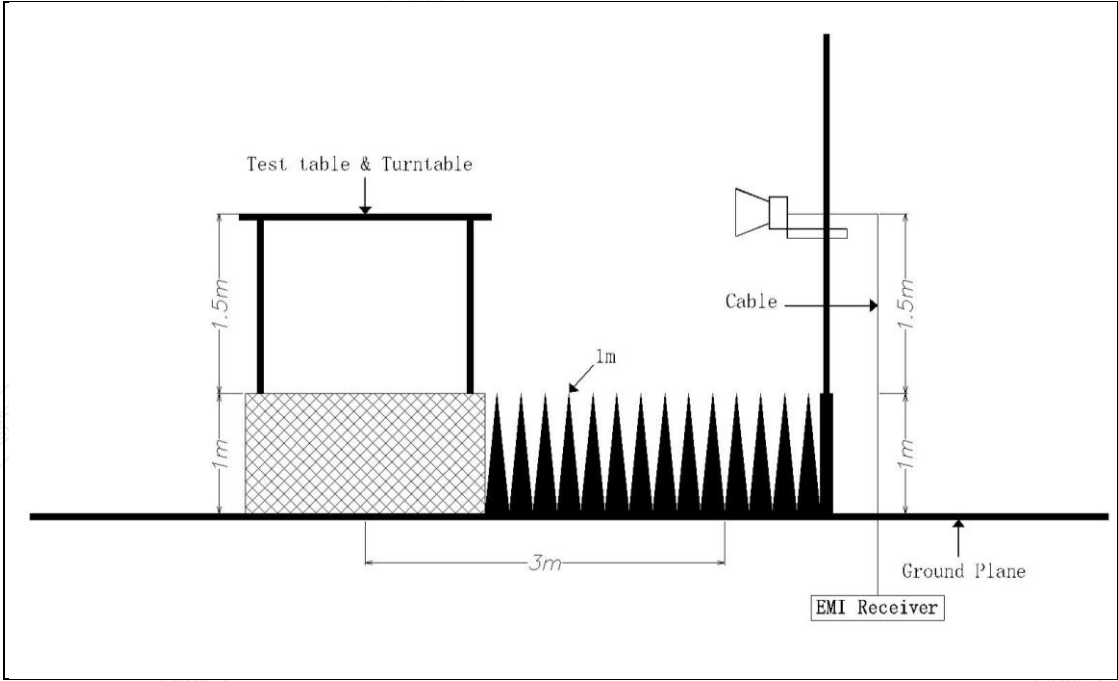
Frequency range	Maximum power	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 694 MHz	-54 dBm	100 kHz
694 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 12,75 GHz	-30 dBm	1 MHz

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6.4.2 TEST CONFIGURATION
30MHz~1000MHz



1000MHz~12750MHz



6.4.3 TEST PROCEDURES

Test condition: Mode 1

Test channel: Lowest channel: (2405MHz), Highest channel: (2480MHz)

Test procedure: Test procedure is according to Clause 5.4.9.2.1 of ETSI EN 300 328 V2.2.2

Remark: Pre-test all data rate and channel, tested and recorded the worst case data.

6.4.4 DATA SAMPLE

Frequency [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
XXX	-49.71	-57.90	-30.00	27.90	-8.19	RMS	Horizontal

Frequency (MHz) = Emission frequency in MHz

Reading (dBm) = Uncorrected Analyzer / Receiver reading

Level (dBm) = Reading (dBm) + Factor (dB)

Limit (dBm) = Limit stated in standard

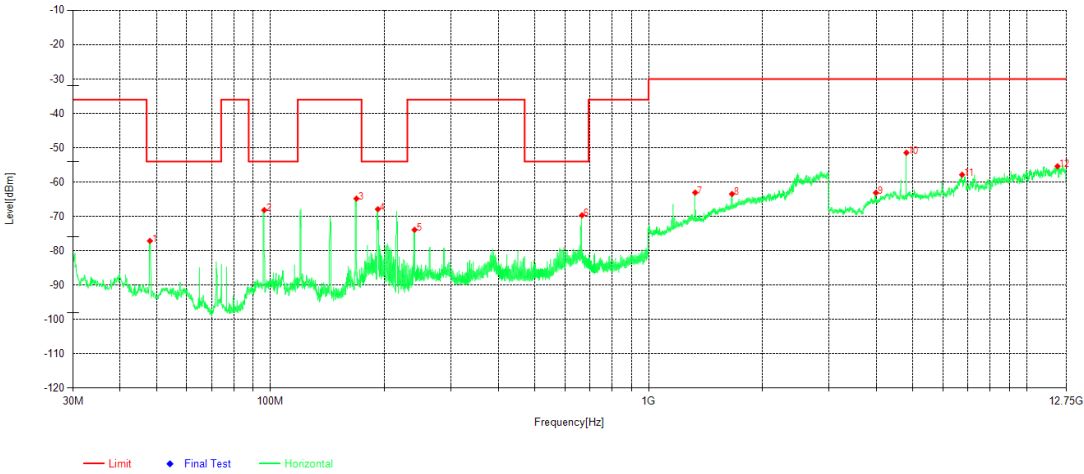
Margin (dB) = Limit(dBm) - Level (dBm)

RMS = Root Mean Square

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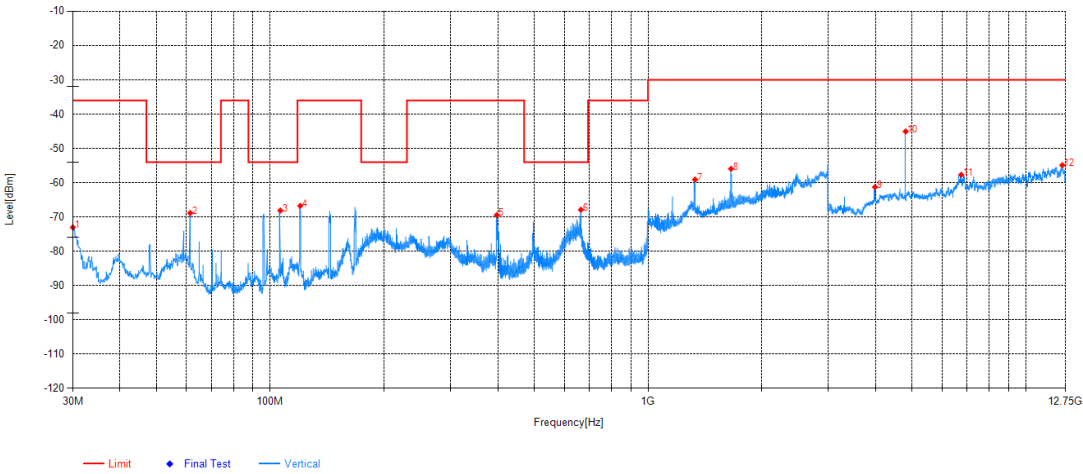
6.4.5 TEST RESULTS

Project No	E20241111636501	EUT:	Climate Sensor W100
Model:	TH-S04E	Sample No:	E20241111636501-0001
Mode:	TX Thread_2405MHz	Voltage:	DC 3V
Environment:	24.3℃/61%RH/101.0kPa	Engineer:	Zhao Yaru
Test Date:	2024-11-15	/	/



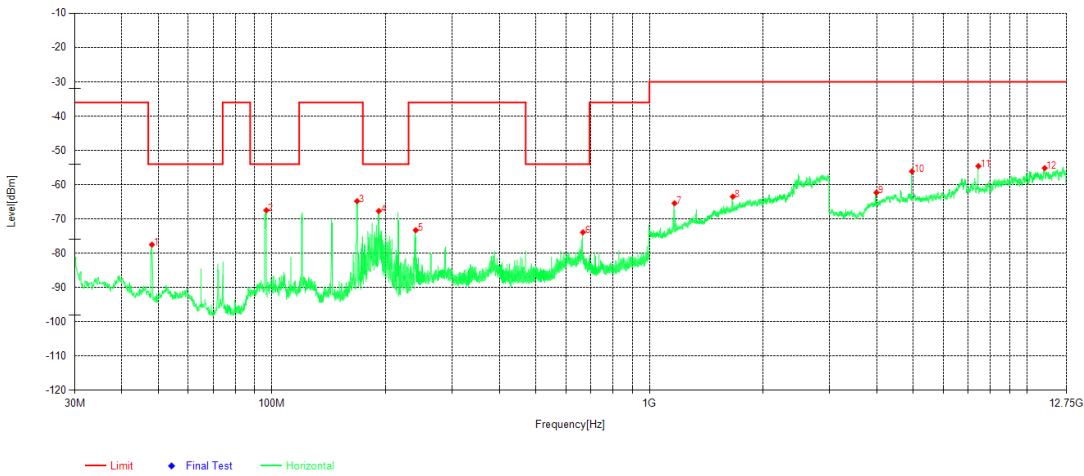
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	47.945	-60.88	-77.14	-54.00	23.14	-16.26	RMS	Horizontal
2	96.154	-51.27	-68.16	-54.00	14.16	-16.89	RMS	Horizontal
3	168.613	-45.32	-64.81	-36.00	28.81	-19.49	RMS	Horizontal
4	192.184	-51.13	-67.89	-54.00	13.89	-16.76	RMS	Horizontal
5	240.296	-57.62	-73.90	-36.00	37.90	-16.28	RMS	Horizontal
6	666.223	-62.15	-69.66	-54.00	15.66	-7.51	RMS	Horizontal
7	1327.6	-63.79	-63.07	-30.00	33.07	0.72	RMS	Horizontal
8	1661.4	-67.86	-63.47	-30.00	33.47	4.39	RMS	Horizontal
9	3993.525	-59.30	-63.13	-30.00	33.13	-3.83	RMS	Horizontal
10	4808.625	-49.55	-51.48	-30.00	21.48	-1.93	RMS	Horizontal
11	6745.95	-63.76	-57.86	-30.00	27.86	5.90	RMS	Horizontal
12	12066.52	-68.72	-55.40	-30.00	25.40	13.32	RMS	Horizontal

Project No	E20241111636501	EUT:	Climate Sensor W100
Model:	TH-S04E	Sample No:	E20241111636501-0001
Mode:	TX Thread_2405MHz	Voltage:	DC 3V
Environment:	24.3℃/61%RH/101.0kPa	Engineer:	Zhao Yaru
Test Date:	2024-11-15	/	/



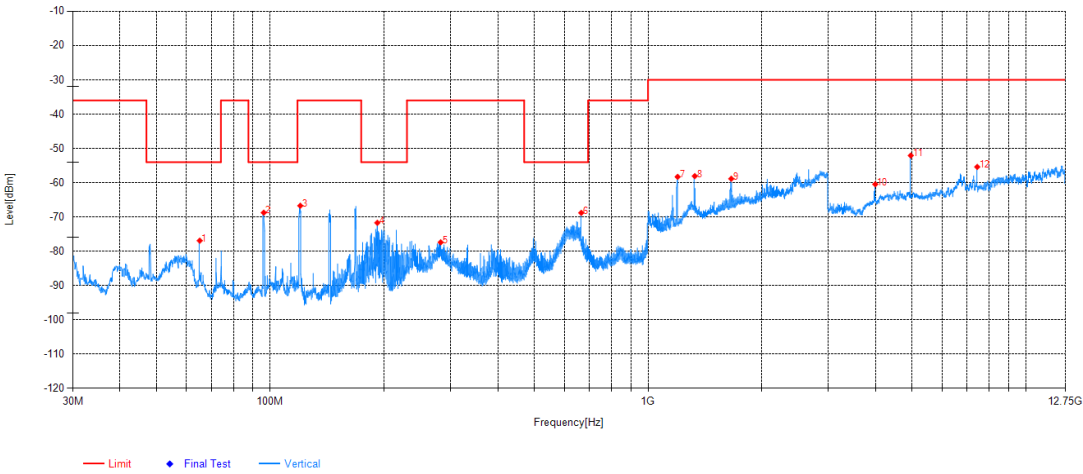
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	30	-55.37	-73.04	-36.00	37.04	-17.67	RMS	Vertical
2	61.331	-55.61	-68.84	-54.00	14.84	-13.23	RMS	Vertical
3	106.242	-48.46	-68.12	-54.00	14.12	-19.66	RMS	Vertical
4	120.016	-46.75	-66.77	-36.00	30.77	-20.02	RMS	Vertical
5	397.63	-57.26	-69.46	-36.00	33.46	-12.20	RMS	Vertical
6	664.186	-60.58	-67.89	-54.00	13.89	-7.31	RMS	Vertical
7	1332	-60.41	-59.09	-30.00	29.09	1.32	RMS	Vertical
8	1659.2	-60.61	-55.97	-30.00	25.97	4.64	RMS	Vertical
9	3989.625	-57.77	-61.29	-30.00	31.29	-3.52	RMS	Vertical
10	4808.625	-43.37	-45.08	-30.00	15.08	-1.71	RMS	Vertical
11	6746.925	-63.95	-57.72	-30.00	27.72	6.23	RMS	Vertical
12	12494.55	-69.67	-54.91	-30.00	24.91	14.76	RMS	Vertical

Project No	E20241111636501	EUT:	Climate Sensor W100
Model:	TH-S04E	Sample No:	E20241111636501-0001
Mode:	TX Thread_2480MHz	Voltage:	DC 3V
Environment:	24.3℃/61%RH/101.0kPa	Engineer:	Zhao Yaru
Test Date:	2024-11-15	/	/



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	48.042	-61.19	-77.49	-54.00	23.49	-16.30	RMS	Horizontal
2	96.542	-50.58	-67.46	-54.00	13.46	-16.88	RMS	Horizontal
3	168.031	-45.30	-64.81	-36.00	28.81	-19.51	RMS	Horizontal
4	191.699	-50.90	-67.68	-54.00	13.68	-16.78	RMS	Horizontal
5	240.296	-57.00	-73.28	-36.00	37.28	-16.28	RMS	Horizontal
6	666.514	-66.36	-73.88	-54.00	19.88	-7.52	RMS	Horizontal
7	1164.6	-64.21	-65.42	-30.00	35.42	-1.21	RMS	Horizontal
8	1663.4	-67.92	-63.48	-30.00	33.48	4.44	RMS	Horizontal
9	3994.5	-58.48	-62.31	-30.00	32.31	-3.83	RMS	Horizontal
10	4960.725	-55.08	-56.12	-30.00	26.12	-1.04	RMS	Horizontal
11	7438.2	-59.44	-54.59	-30.00	24.59	4.85	RMS	Horizontal
12	11148.07	-68.08	-55.16	-30.00	25.16	12.92	RMS	Horizontal

Project No	E20241111636501	EUT:	Climate Sensor W100
Model:	TH-S04E	Sample No:	E20241111636501-0001
Mode:	TX Thread_2480MHz	Voltage:	DC 3V
Environment:	24.3℃/61%RH/101.0kPa	Engineer:	Zhao Yaru
Test Date:	2024-11-15	/	/



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	65.017	-61.68	-76.92	-54.00	22.92	-15.24	RMS	Vertical
2	96.057	-49.43	-68.74	-54.00	14.74	-19.31	RMS	Vertical
3	120.016	-46.70	-66.72	-36.00	30.72	-20.02	RMS	Vertical
4	191.99	-54.23	-71.70	-54.00	17.70	-17.47	RMS	Vertical
5	282.491	-62.72	-77.39	-36.00	41.39	-14.67	RMS	Vertical
6	665.447	-61.39	-68.80	-54.00	14.80	-7.41	RMS	Vertical
7	1198	-58.55	-58.29	-30.00	28.29	0.26	RMS	Vertical
8	1329.6	-59.46	-58.09	-30.00	28.09	1.37	RMS	Vertical
9	1661.2	-63.49	-58.84	-30.00	28.84	4.65	RMS	Vertical
10	3996.45	-57.06	-60.47	-30.00	30.47	-3.41	RMS	Vertical
11	4960.725	-51.17	-52.08	-30.00	22.08	-0.91	RMS	Vertical
12	7441.125	-60.32	-55.40	-30.00	25.40	4.92	RMS	Vertical

6.5 RECEIVER SPURIOUS EMISSIONS

Test Requirement: AS/NZS 4268:2017 Clause 7.2

Test Method: ETSI EN 300 328 V2.2.2/5.4.10.2.2

6.5.1 LIMIT

The spurious emissions of the receiver shall not exceed the values given in table 3.

In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or for emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p for emissions up to 1 GHz and e.i.r.p for emissions above 1 GHz.

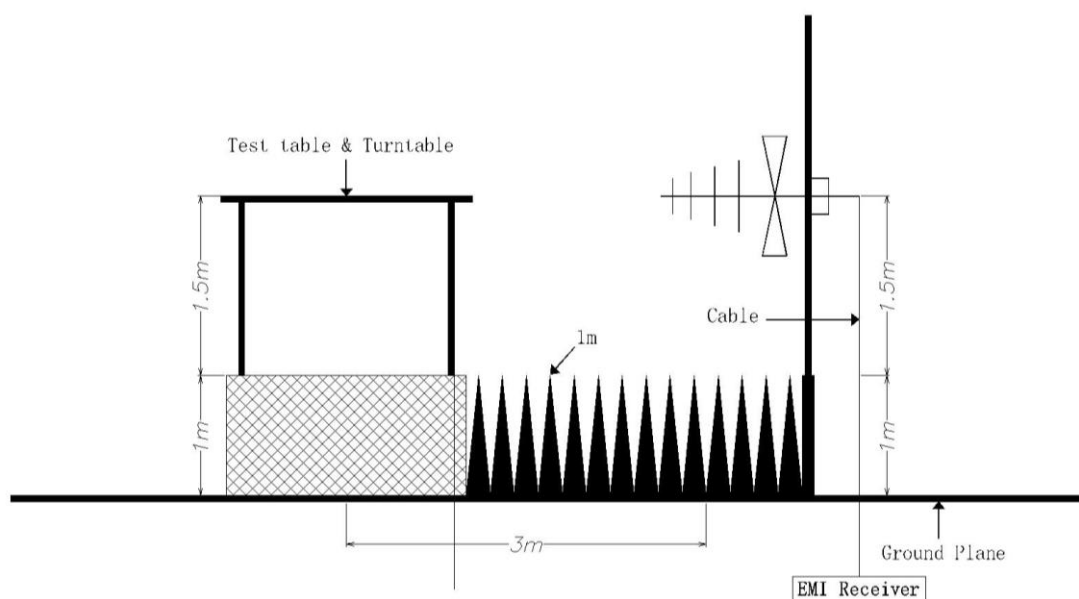
This device uses Radiated measurement.

Table 3: Spurious emission limits for receivers

Frequency range	Maximum power	Bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 12,75 GHz	-47 dBm	1 MHz

6.5.2 TEST CONFIGURATION

30MHz-1000MHz



The diagram illustrates the experimental setup for EMI measurement. A test table and turntable are positioned on a ground plane. A cable connects the turntable to an EMI Receiver. The distance between the turntable and the receiver is 3m. The height of the turntable is 1m, and the height of the receiver is 1.5m. The distance from the turntable to the receiver is 3m. The distance from the turntable to the receiver is 3m.

Test channel: Lowest channel: (2405MHz), Highest channel: (2480MHz)

Test procedure: Test procedure is according to Clause 5.4.10.2.2 of ETSI EN 300 328 V2.2.2

Remark: /

Frequency [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
XXX	-58.02	-73.33	-57.00	16.33	-15.31	RMS	Horizontal

Frequency (MHz) = Emission frequency in MHz

Reading (dBm) = Uncorrected Analyzer / Receiver reading

$$\text{Level (dBm)} = \text{Reading (dBm)} + \text{Factor (dB)}$$

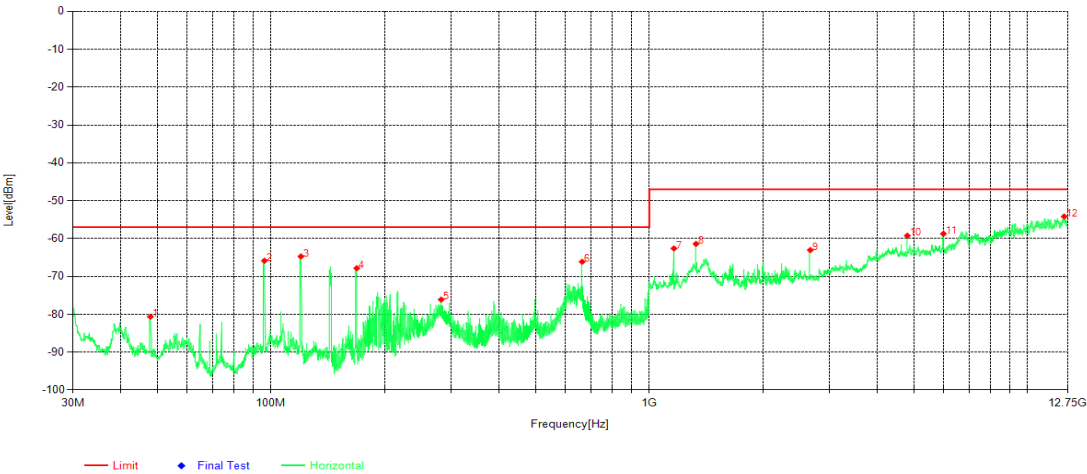
Limit (dBm) = Limit stated in standard

$$\text{Margin (dB)} = \text{Limit (dBm)} - \text{Level (dBm)}$$

RMS = Root Mean Square

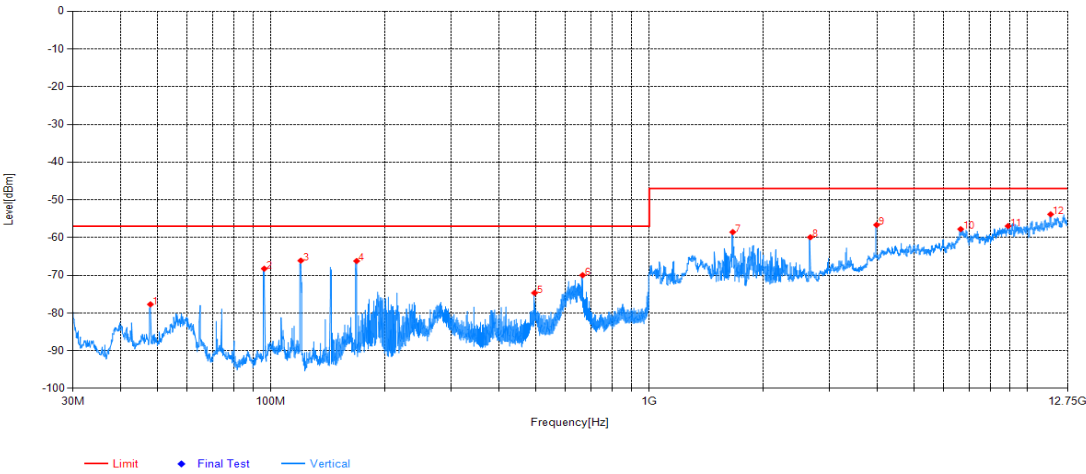
6.5.5 TEST RESULTS

Project No	E20241111636501	EUT:	Climate Sensor W100
Model:	TH-S04E	Sample No:	E20241111636501-0001
Mode:	RX Thread_2405MHz	Voltage:	DC 3V
Environment:	24.3°C/61%RH/101.0kPa	Engineer:	Zhao Yaru
Test Date:	2024-11-15	/	/



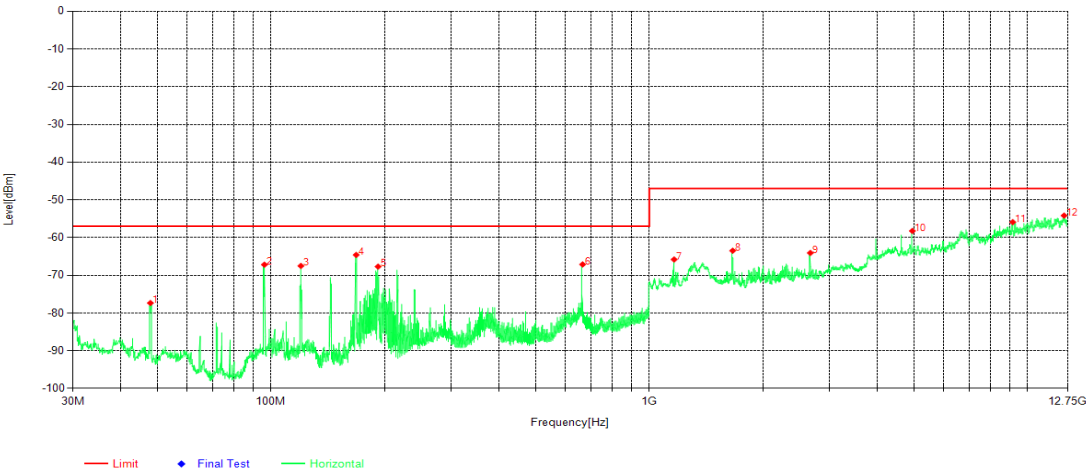
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	48.042	-64.35	-80.65	-57.00	23.65	-16.30	RMS	Horizontal
2	96.154	-48.97	-65.86	-57.00	8.86	-16.89	RMS	Horizontal
3	120.016	-46.21	-64.74	-57.00	7.74	-18.53	RMS	Horizontal
4	168.613	-48.34	-67.83	-57.00	10.83	-19.49	RMS	Horizontal
5	281.812	-61.85	-76.14	-57.00	19.14	-14.29	RMS	Horizontal
6	664.962	-58.68	-66.12	-57.00	9.12	-7.44	RMS	Horizontal
7	1162.15	-48.50	-62.62	-47.00	15.62	-14.12	RMS	Horizontal
8	1329	-49.94	-61.41	-47.00	14.41	-11.47	RMS	Horizontal
9	2664.975	-53.07	-63.04	-47.00	16.04	-9.97	RMS	Horizontal
10	4812.875	-57.36	-59.25	-47.00	12.25	-1.89	RMS	Horizontal
11	5993.75	-60.31	-58.75	-47.00	11.75	1.56	RMS	Horizontal
12	12497.37	-68.92	-54.19	-47.00	7.19	14.73	RMS	Horizontal

Project No	E20241111636501	EUT:	Climate Sensor W100
Model:	TH-S04E	Sample No:	E20241111636501-0001
Mode:	RX Thread_2405MHz	Voltage:	DC 3V
Environment:	24.3℃/61%RH/101.0kPa	Engineer:	Zhao Yaru
Test Date:	2024-11-15	/	/



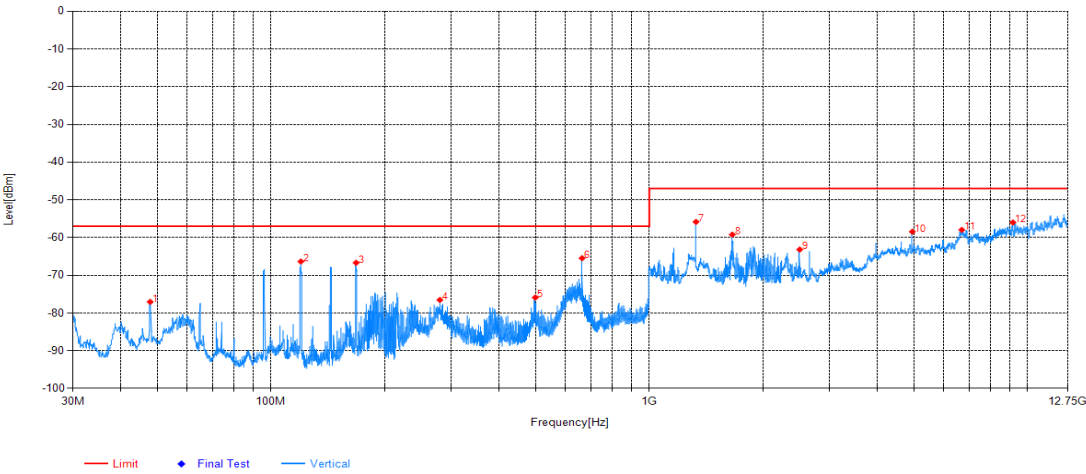
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	48.042	-64.18	-77.71	-57.00	20.71	-13.53	RMS	Vertical
2	96.057	-48.95	-68.26	-57.00	11.26	-19.31	RMS	Vertical
3	120.016	-46.10	-66.12	-57.00	9.12	-20.02	RMS	Vertical
4	168.516	-48.33	-66.23	-57.00	9.23	-17.90	RMS	Vertical
5	497.54	-64.95	-74.69	-57.00	17.69	-9.74	RMS	Vertical
6	666.611	-62.50	-69.99	-57.00	12.99	-7.49	RMS	Vertical
7	1662.7	-45.95	-58.56	-47.00	11.56	-12.61	RMS	Vertical
8	2666.15	-50.07	-59.92	-47.00	12.92	-9.85	RMS	Vertical
9	3989.2	-53.18	-56.65	-47.00	9.65	-3.47	RMS	Vertical
10	6658.8	-62.93	-57.78	-47.00	10.78	5.15	RMS	Vertical
11	8884.25	-65.66	-56.96	-47.00	9.96	8.70	RMS	Vertical
12	11510.37	-67.61	-53.84	-47.00	6.84	13.77	RMS	Vertical

Project No	E20241111636501	EUT:	Climate Sensor W100
Model:	TH-S04E	Sample No:	E20241111636501-0001
Mode:	RX Thread_2480MHz	Voltage:	DC 3V
Environment:	24.3℃/61%RH/101.0kPa	Engineer:	Zhao Yaru
Test Date:	2024-11-15	/	/



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	48.042	-61.05	-77.35	-57.00	20.35	-16.30	RMS	Horizontal
2	96.154	-50.30	-67.19	-57.00	10.19	-16.89	RMS	Horizontal
3	120.016	-48.99	-67.52	-57.00	10.52	-18.53	RMS	Horizontal
4	168.031	-45.10	-64.61	-57.00	7.61	-19.51	RMS	Horizontal
5	191.99	-50.94	-67.71	-57.00	10.71	-16.77	RMS	Horizontal
6	666.514	-59.60	-67.12	-57.00	10.12	-7.52	RMS	Horizontal
7	1163.325	-51.72	-65.82	-47.00	18.82	-14.10	RMS	Horizontal
8	1661.525	-50.60	-63.49	-47.00	16.49	-12.89	RMS	Horizontal
9	2666.15	-54.11	-64.08	-47.00	17.08	-9.97	RMS	Horizontal
10	4962.1	-57.28	-58.25	-47.00	11.25	-0.97	RMS	Horizontal
11	9141.575	-65.60	-55.91	-47.00	8.91	9.69	RMS	Horizontal
12	12491.5	-68.77	-54.18	-47.00	7.18	14.59	RMS	Horizontal

Project No	E20241111636501	EUT:	Climate Sensor W100
Model:	TH-S04E	Sample No:	E20241111636501-0001
Mode:	RX Thread_2480MHz	Voltage:	DC 3V
Environment:	24.3℃/61%RH/101.0kPa	Engineer:	Zhao Yaru
Test Date:	2024-11-15	/	/



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Detector	Polarity
1	47.945	-63.53	-77.06	-57.00	20.06	-13.53	RMS	Vertical
2	120.016	-46.34	-66.36	-57.00	9.36	-20.02	RMS	Vertical
3	167.934	-48.82	-66.70	-57.00	9.70	-17.88	RMS	Vertical
4	279.678	-61.80	-76.54	-57.00	19.54	-14.74	RMS	Vertical
5	499.771	-66.38	-75.91	-57.00	18.91	-9.53	RMS	Vertical
6	664.477	-58.13	-65.46	-57.00	8.46	-7.33	RMS	Vertical
7	1329	-44.11	-55.85	-47.00	8.85	-11.74	RMS	Vertical
8	1658	-46.61	-59.21	-47.00	12.21	-12.60	RMS	Vertical
9	2499.3	-53.36	-63.18	-47.00	16.18	-9.82	RMS	Vertical
10	4962.1	-57.62	-58.46	-47.00	11.46	-0.84	RMS	Vertical
11	6703.45	-63.50	-57.97	-47.00	10.97	5.53	RMS	Vertical
12	9150.975	-66.01	-56.00	-47.00	9.00	10.01	RMS	Vertical

APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM

Please refer to the attached document E20241111636501-Test Photo.

APPENDIX B. PHOTOGRAPHS OF EUT

Please refer to the attached document E20241111636501-EUT Photo.

----- End of Report -----